Amendments to the Specification

Add the following new heading before paragraph [0002]:

BACKGROUND

Add the following new heading before paragraph [0009]:

SUMMARY OF THE INVENTION

Please replace paragraph [0009] with the following amended paragraph:

[0009] The ~~object of the~~ present invention ~~is to provide~~ provides a method and a device for determining the effects that cycle time limitations for subprocesses have on quality parameters of a production process without requiring an analytical model of the production process and without the need to intervene in the real production process.

Please replace paragraph [0010] with the following amended paragraph:

[0010] ~~This objective is achieved by a method according to Claim 1, a device according to Claim 12, and a computer program product according to Claim 17 or Claim 18. Advantageous embodiments are specified in the dependent claims.~~ In an exemplary embodiment of the present invention, a method for determining effects of cycle time limitations for sub-processes of a production process for individual units of a technical product is provided. In the method of the exemplary embodiment, there is set: a pre-selected definition of the order of sequence in which the sub-processes of the production process are carried out, a pre-selected planned cycle time through the production process, a pre-selected random sample including individual sample elements of units processed in the production process, each one of the individual sample elements including information on actual cycle times of the corresponding unit through the sub-processes, and a pre-selected maximum cycle time through a pre-selected one of the sub-processes. The method comprises the steps of: for all individual sample elements, replacing the actual corresponding cycle times through the pre-selected one of the sub-processes with pre-selected reduced cycle times set to be equal to or less than the pre-selected maximum cycle time for the pre-selected one of the sub-processes, determining cycle times through the production process, which result from the reduction, for the random sample, using the reduced cycle times

for the individual sample elements of the random sample through the pre-selected one of the sub-processes, the actual cycle times of the individual sample elements of the random sample through the remaining sub-processes, and the order of sequence, and determining a degree of delivery reliability of the production process as a proportion of sample elements of the random sample having cycle times that are less than or equal to the planned cycle time through the production process. In addition, the present invention provides a device arrangement, which can comprises a computer having an internal memory, and a computer program product for determining effects that cycle time limitations for sub-processes of a production process have on quality parameters of the production process.

Please replace paragraph [0018] with the following amended paragraph:

[0018] In a refinement of the present invention, two different parameters of the production process, namely the degree of delivery reliability and the average storage duration, may be determined using the same random sample ~~(Claim 5)~~. In one refinement of the present invention ~~(Claim 2)~~, the degree of delivery reliability is determined as a function of the planned cycle time. This refinement eliminates the need to definitively define, for example, a degree of delivery reliability or a planned cycle time and to adjust the production process to this fixed input. Rather, the function is illustrated graphically, and an interdisciplinary team can analyze this function and define an operating point, that is, a planned cycle time and the degree of delivery reliability resulting therefrom. Another embodiment ~~(Claim 3)~~ provides for such an operating point to be selected automatically. The function increases monotonously because a longer planned cycle time results in a greater or at least equal degree of delivery reliability. Therefore, its slope can be determined at least approximately, and the point where the slope of the function is approximately 45 degrees is selected as the operating point. For longer planned cycle times, the function quickly saturates, so that a longer planned cycle time does indeed result in an increased inventory, but only in a slightly greater degree of delivery reliability. Shorter planned cycle times result in a considerably lower degree of delivery reliability, and are often not achievable.

Add the following new heading before paragraph [0019]:

BRIEF DESCRIPTION OF THE DRAWINGS

Add the following new heading before paragraph [0030]:

DETAILED DESCRIPTION

Please replace paragraph [0063] with the following amended paragraph:

[0063] Figure 4 shows the four functions of Table 5 in an xy diagram with the planned cycle time in days DLZ[d] on the x-axis and the degree of delivery reliability in percent TTG [%] on the y-axis. Function 300.11 in Figure 4 belongs to combination comb_11; function 300.14 belongs to combination comb_14. ~~Figure 7~~ Figure 5 shows the inverse functions, that is, in each case, the maximum planned cycle time as a function of the degree of delivery reliability. Function 300.21 in Figure 5 belongs to combination comb_11; function 300.24 belongs to combination comb_14.

Please replace paragraph [0082] with the following amended paragraph:

[0082] In summary, the present invention relates to a method, a device arrangement, and a computer program product for determining effects that cycle time limitations for subprocesses of a production process have on quality parameters of the production process. The device arrangement can comprise, for example, a computer having an internal memory. A limitation of the planned cycle time is specified for at least one subprocess of a serial production process. Also specified is a planned cycle time through the entire production process. The present invention teaches how two production process parameters resulting from the cycle time limitation for the at least one subprocess are automatically determined using a random sample: the degree of delivery reliability (TTG) and the average storage duration. Given a constant throughput, the latter is proportional to the average inventory of finished products. The method may be used in particular to test the effects of different cycle time limitations for different subprocesses in advance.